USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003KS31B

Title: Reduced Irrigation Allocations in Kansas from Grain Yield -- ET Relationships and Decision Support Model

Project Type: Research

Focus Categories: Irrigation, Water Use

Keywords: Irrigation, water allocation, decision support

Start Date: 03/01/2003

End Date: 02/28/2004

Federal Funds Requested: $16617.00

Matching Funds: $47728.00

Congressional District: 2nd District

Principal Investigators: Klocke, Norman; Clark, Gary; Stone, Loyd; Dumler, Troy

Abstract: Many irrigators in Kansas are facing immediate challenges with declining yields from their wells. All irrigators in Kansas face the possibility of shrinking water allocations with changes in water policy or simply enforcement of current water policy. Any of these scenarios will mean more limited irrigation than has been used in the past. Irrigators need to make decisions when water is scarce about crop selection, water allocation to crops selected, and land allocation for irrigation. Currently they make these selections from experience with crop responses to water and budgeting. These are the tools that they need, but the choices and processes become complicated. We need to provide them with a more formalized tool that can handle the range of choices possible. A computerized decision tool based on scientifically developed crop responses to water and formalized budgeting techniques is the subject of this proposal. We are combining the efforts of scientists from the production view point of irrigation with the economics view point of irrigation to challenge a real issue with irrigators. The challenge is to make the best use of scarce water with their farming operation. This project is designed to build from the Kansas Water Budget and the crop budgeting process. The Kansas Water Budget will provide the framework to predict crop grain yields from evapotranspiration (ET), which can be derived from weather inputs. Irrigation and rainfall information also drives the inputs to ET. The foundation relationships for

grain yields for grain yield and ET have been developed from past research. One of the objectives of this project is to update these relationships for corn, soybean, wheat, sorghum and sunflower in no-till management.

U.S. Department of the Interior, U.S. Geological Survey
Maintain: Schefter@usgs.gov
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